

**DRAFT  
SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT  
PINEDALE ANTICLINE OIL AND GAS EXPLORATION AND DEVELOPMENT PROJECT  
SUBLETTE COUNTY, WYOMING**

**(Volume 1 of 2)**

**Bureau of Land Management  
Wyoming State Office  
Cheyenne, Wyoming**

**Pinedale Field Office  
Pinedale, Wyoming**

**In Cooperation with**

**State of Wyoming  
Sublette County**

**December 2006**

## ABSTRACT

### **Draft Supplemental Environmental Impact Statement Pinedale Anticline Oil and Gas Exploration and Development Project Sublette County, Wyoming**

**Lead Agency:** Bureau of Land Management, Pinedale Field Office, Pinedale, Wyoming

**Type of Action:** Administrative

**Jurisdiction:** Within Sublette County

**Abstract:** The Bureau of Land Management has received a proposal for long-term development of the Pinedale Anticline Project Area (PAPA) including consolidated development with year-round drilling. The PAPA consists of 198,034 acres and is located in west-central Wyoming in Sublette County, near Pinedale, Wyoming. The Town of Pinedale is located approximately 80 highway miles south of Jackson and 100 miles north of Rock Springs. There are currently more than 450 producing wells in the PAPA on 348 well pads. The wells are expected to produce for approximately 40 years and the life of the project (i.e., the time from first well is drilled to the last well is plugged and abandoned, and habitat function restored) is estimated at 60 years.

This document supplements analysis and decisions reached by the BLM, as the lead agency, in cooperation with the U.S. Forest Service, U.S. Army Corps of Engineers, and the State of Wyoming, in the *Final Environmental Impact Statement for the Pinedale Anticline Oil and Gas Exploration and Development Project – Sublette County, Wyoming* and in the *Record of Decision for the Pinedale Anticline Oil and Gas Exploration and Development Project – Sublette County, Wyoming*.

Three alternatives were considered in detail. The No Action Alternative (Alternative A) is required by the National Environmental Policy Act (NEPA) as a baseline against which two other action alternatives, consisting of the Proposed Action (Alternative B) and Alternative C, are analyzed. These alternatives provide a variety of management choices to mitigate the effects of resource development.

The Proposed Action includes year-round drilling and completions within big game crucial winter habitats and would occur in three Concentrated Development Areas within a core area centered on the Anticline Crest. Alternative C, rather than only specifying certain areas of development where year-round drilling could occur, specifies areas where year-round drilling would not occur. These alternatives are fully described in Chapter 2 of the Draft Supplemental Environmental Impact Statement (SEIS). The various impacts that would be expected from implementing each of the alternatives are disclosed in Chapter 4.

Further information regarding this Draft SEIS can be obtained from the address below. Comments will be accepted for 60 days following the date that the Environmental Protection

Agency publishes the notice of filing of this Draft SEIS in the Federal Register. Comments should be sent to the following address:

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## EXECUTIVE SUMMARY

The Department of Interior, Bureau of Land Management (BLM) Pinedale Field Office has been notified by Ultra Resources, Inc., Shell Exploration & Production Company, Questar Market Resources including Wexpro Company, BP America Production Company, Stone Energy Corporation, Yates Petroleum Corporation, and others who agree to participate, collectively referred to as the Operators, that they propose a new long-term development plan that includes limited year-round drilling and completions of natural gas wells within their leases in the Pinedale Anticline Project Area (PAPA). The PAPA encompasses 198,034 acres and is located near Pinedale, Wyoming in Sublette County. BLM has identified the need for additional pipeline corridors to transport hydrocarbon products from the PAPA to gas processing plants in southwestern Wyoming. Jonah Gas Gathering Company and Rendezvous Gas Services propose gas sales pipelines that would be placed within the new corridors, and Questar Gas Management and Mountain Gas Resources are proposing an expansion of the Granger Gas Processing Plant in Sweetwater County.

Since 2000, BLM has managed oil and gas development in the PAPA under the terms and conditions stated in the Record of Decision for the *Final Environmental Impact Statement for the Pinedale Anticline Oil and Gas Exploration and Development Project Sublette County, Wyoming* (PAPA ROD). BLM prepared this Draft Supplemental Environmental Impact Statement (SEIS) because the Operators' proposed long-term development plan is substantially different from the approach that was approved in the PAPA ROD. The Operators' proposal requests exemption from BLM stipulations for wildlife, which restrict their development activities within seasonal ranges. BLM has determined that the Operators' proposal could cause significant adverse impacts to the human and natural environments.

Regulations enacted by the Council on Environmental Quality state the conditions under which federal agencies should supplement existing documents (either draft or final environmental impact statements) that have been prepared to implement the National Environmental Policy Act - NEPA (40 CFR § 1502.9(c)(1)). The conditions include 1) substantial changes made by the agency that are relevant to environmental concerns; or 2) presence of significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. This Draft SEIS was prepared to assess the environmental consequences of the Operator's Proposed Action and alternative courses of action. It is intended to provide the public and decision makers with a complete and objective evaluation of impacts resulting from the Proposed Action and reasonable alternatives.

### LIMITS BY THE PAPA ROD

Project components approved in Section 2 of the PAPA ROD include:

- 900 initial well pad locations on all lands and minerals within the PAPA;
- 700 producing wells and/or well pads on all lands and minerals within the PAPA;
- 700 production facilities at individual well locations;
- central production facilities;
- 4 compressor facility sites;
- water wells for drilling/completion;
- 1 BP Amoco Field Office;
- ~121.5 miles of sales pipeline corridor for multiple pipelines;
- ~276.0 miles of access road (including collector, local and resource roads); and
- ~280.0 miles of gathering pipeline system.

It was not the intent of the PAPA ROD to limit wells but rather to limit well pads within defined Management Areas (MAs) that were developed to conserve sensitive resources. The PAPA ROD specifies that if any of the authorized limits to development are reached, additional environmental analysis would be required.

## **EXISTING DEVELOPMENT**

Since 2000, most natural gas development in the PAPA has been along the Anticline Crest, which is approximately 2 to 3 miles wide centered along the length of the PAPA. As of December 31, 2005, there were approximately 457 producing wells on 322 well pads in the PAPA. Of these, 428 wells on 266 well pads were drilled after issuance of the PAPA ROD. An additional 205 wells on 26 pads are projected for 2006. There were 33 drilling rigs operating during August 2005 in the PAPA, the most during any month since the PAPA ROD was issued. Twenty-three rigs were operating in December 2005. The threshold for total well pads in the PAPA ROD will not be reached by the end of 2006.

Approximately 176.5 miles of local and resource roads have been constructed and/or improved since the PAPA ROD was issued and the Operators are projecting an additional 5.9 miles of roads in 2006. At the end of 2006 there will be approximately 182.4 miles of roads in the PAPA that are subject to the 276.0-mile limit in the PAPA ROD. The threshold for roads in the PAPA ROD will not be reached by the end of 2006. Approximately 134.2 miles of gathering pipeline have been constructed between July 2000 and December 2005, with an additional 7.9 miles of gas gathering pipeline projected in 2006. The total of 142.1 miles of gathering pipeline is below the limit allowed by the PAPA ROD.

The PAPA ROD allowed for four compressor facility sites (three have been constructed) with varying levels of compression. The current level is within the amount of compression authorized in the PAPA ROD. The total nitrogen oxide (NO<sub>x</sub>) emissions (472.2 tons/year) for compression are over the NO<sub>x</sub> analysis threshold (376.59 tons/year) specified in the PAPA ROD. Total NO<sub>x</sub> emissions for all emission sources are over the analysis threshold specified in the PAPA ROD (693.50 tons/year).

Since the PAPA ROD was issued, BLM has permitted other wellfield facilities that were not authorized in the PAPA ROD (stabilizer facility, central delivery points, water handling facility) through granting rights-of-way and/or additional NEPA analyses.

## **SCOPING**

Public and agency scoping was conducted to determine issues relative to the Proposed Action. A scoping notice was mailed to potentially interested parties on October 21, 2005. All issues and concerns identified during scoping were evaluated to identify concerns that formed the basis for development of alternatives and the impact analyses. The nine key issues and concerns identified were: pace of development; conservation of wildlife; need for wildlife mitigation; wildlife displaced to private land; increased winter traffic; economic stability in Sublette County; industrialization and single use of land; declining wildlife populations; effects to surface water and groundwater; and effects to air quality in the region. The three alternatives meet the Purpose and Need of the proposal but vary in response to the concerns. Other alternatives were considered but were not analyzed in detail for a variety of reasons.

## **ALTERNATIVES**

### **Alternative A - No Action Alternative**

The No Action Alternative is based on elements authorized by the PAPA ROD. Development in the PAPA beyond the levels specified in the PAPA ROD would require additional environmental review; however, the thresholds have not been reached for wellfield components. The PAPA ROD did not specify the type or extent of the additional environmental review that would be required.

The No Action Alternative is required by the National Environmental Policy Act (NEPA) as a baseline against which other action alternatives can be analyzed. For this project, the No Action Alternative is a continuation of current BLM management practices. Wellfield development could continue on state and private leases and would occur on federal leases as authorized by prior NEPA decisions.

### **Alternative B - Proposed Action Alternative**

The Proposed Action includes year-round drilling, completions, and production of up to 4,399 additional wells on up to 12,278 acres of new disturbance, including well pads, roads, pipelines, and other ancillary facilities within the PAPA. Drilling and completions within big game crucial winter habitats would occur in each of three Concentrated Development Areas within a core area centered on the Anticline Crest. The Operators propose to install a liquids gathering system in the central and southern portions of the PAPA complimenting the existing liquids gathering system in the northern portion of the PAPA. Tier 2 equivalent emission controls would be installed on drilling rig engines in 29 out of 48 drilling rigs at peak drilling in 2009. The Operators have offered 3:1 offsite mitigation for wildlife, if necessary.

### **Alternative C**

Alternative C is similar to the Proposed Action Alternative in that it consists of the same project components including up to 4,399 additional wells on up to 12,278 acres of disturbance, however, it is spatially different. That is, rather than only specifying certain areas of development where year-round drilling could occur, Alternative C specifies areas where year-round drilling would not occur. It includes a core area boundary that is smaller than the Proposed Action core area. The overall objective of Alternative C is to control spatial disturbance over time maximizing development in some areas while minimizing development in other areas, especially in portions of big game crucial winter ranges. Alternative C includes five development areas. There would be temporary relaxation of seasonal wildlife stipulations in two of the three development areas coinciding with big game crucial winter ranges at any time. Additional mitigation, developed by BLM as Performance Based Objectives is included in Alternative C as well as measures to further reduce air quality impacts beyond that included in the Proposed Action Alternative.

## **ENVIRONMENTAL IMPACTS**

### **Socioeconomics**

Beneficial direct impacts to socioeconomics by all alternatives include increased employment, particularly for local residents. However, locally hired workers exert pressure on limited local housing markets. Increased populations are expected in Lincoln, Sublette, and Sweetwater counties which will negatively impact demand for local infrastructure, services, and facilities. Direct, indirect, and induced economic benefits to Sublette County from continuation of wellfield development in the PAPA would be substantial.

## **Transportation**

Each alternative would require construction of additional roads to support increased wellfield traffic. Traffic levels would increase during winter with year-round drilling. Increased traffic would increase road maintenance costs and could lead to increased vehicular accident rates.

## **Land Use and Residential Areas**

Continued development and surface disturbance in the PAPA by any of the alternatives will change some existing land use categories to a predominant industrial landscape. In particular, additional surface disturbance would be in conflict with the goals of Sublette County Resource Conservation Zoning District. No new wellfield development is expected to conflict with any Sublette County residential zoning districts but there will be new disturbances within the Residential SRMZ.

## **Recreation**

Decreased recreational use of OHV areas in the PAPA, by additional surface disturbance, is expected for each alternative. Decreased hunting opportunities are expected in the PAPA with decreased abundance of big game and upland game birds as density of wellfield development increases.

## **Visual Resources**

Wellfield development has and will continue to be the locally dominant feature in VRM Class II under each alternative. Similarly, wellfield development is and will continue to be a dominant feature in VRM Class III. All alternatives are expected to lead to local industrialized appearances in the Sensitive Viewshed SRMZ.

## **Cultural and Historic Resources**

Destruction and/or unexpected discoveries of archaeological resources are expected consequences of new surface disturbance in the PAPA by each alternative. Increased disturbance is likely in areas with high potential for major finds (sandy bluffs north of the New Fork River, not in Mesa Breaks). Potential surface disturbance in the 0.25-mile buffer of the Lander Trail may decrease the visual integrity within the Lander Trail SRMZ.

## **Air Quality**

It is expected that there would be no violations to applicable federal and state air quality standards. Air quality impacts to visibility at regional Class I airsheds (e.g., Bridger Wilderness Area) are anticipated under all alternatives. A detailed analysis of air quality effects is provided in the *Air Quality Impact Analysis Technical Support Document*.

## **Noise**

Drilling and completion under each alternative would increase noise above 10 dBA at noise-sensitive sites (residences, greater sage-grouse leks) up to 2,800 feet away.

## **Geology and Geologic Hazards**

Additional disturbance by each alternative would increase erosion and slope instability by disturbance to soils on slopes  $\geq 15\%$  with high erosion potential. Continued drilling would lead to eventual depletion of the natural gas resource.

**Paleontological Resources**

Additional surface disturbance by each alternative would increase the possibility of loss, damage, or destruction of fossils in the Blue Rim Area.

**Groundwater**

Drilling of water supply wells under each alternative could lead to temporary drawdown of the Wasatch aquifer. Water use from supply wells within the PAPA is expected to decrease under all alternatives as produced water is re-used to a greater degree.

**Surface Water**

Annual sediment yields would be increased substantially above current conditions in six hydrologic sub-watersheds that coincide with the Anticline Crest. Surface water quality could be impacted under all alternatives if BMPs are not used extensively to prevent erosion and reclamation is not timely.

**Soil Resources**

Each alternative would disturb sensitive soils with high erosion potential and low revegetation capabilities. Disturbances to soils on slopes  $\geq 15\%$  with high erosion potential are expected to increase soil erosion and sedimentation in aquatic habitats substantially above current conditions under all alternatives.

**Vegetation Resources**

Removal of existing native vegetation would be considerable under all of the alternatives. Surface disturbance in native vegetation dominated by shrubs and trees would be converted to herbaceous vegetation. Unsuccessful revegetation with increased presence of noxious weeds (Canada thistle, perennial pepperweed) is expected on unreclaimed bare ground.

**Grazing Resources**

Loss of livestock grazing capacity (AUMs) by removal of existing native vegetation in the PAPA is expected within some grazing allotments. Decreased grazing capacity with increased presence of noxious weeds (Canada thistle, perennial pepperweed) is likely on unreclaimed bare ground.

**Wetlands, Riparian Resources and Flood Plains**

Loss of wetlands and/or wetland function due to surface disturbance in wetlands is likely under each alternative. Surface disturbance in the wetland SRMZ with increased sedimentation in aquatic habitats is possible with removal of forest-dominated riparian and shrub vegetation. Surface disturbance within the 100-year flood plain may adversely affect flood plain function which includes river channel migration.

**Threatened, Endangered Species and Special Status Species**

Nesting bald eagles may be affected by surface disturbance and associated human presence by each alternative. The effects are expected to be substantial within 1 mile of the New Fork River riparian zone with potential effects to forested-dominated riparian habitat which is utilized by wintering bald eagles.



Effects to endangered Colorado River fish species are not anticipated. Even though there will be short-term surface water withdrawals and groundwater withdrawals, there may be a net contribution to the Colorado River Basin as a result of the produced water discharge from the Anticline Disposal Facility.

Direct effects to special status wildlife species that depend on upland habitats (sagebrush steppe, mixed grass prairie, greasewood and desert shrub), forest-dominated riparian forest habitats, and wetland habitats are expected under each alternative. Special status fish species may be adversely affected by increased sedimentation in aquatic habitats. Direct effects to extant populations of special status plant species are possible with surface disturbance in the Blue Rim Area under each alternative.

### **Wildlife and Aquatic Resources**

Implementation of any alternative is likely to create additional barriers to wildlife movements with increased fragmentation by creation of edges and patches within former contiguous habitats. There would be indirect effects to species that depend on upland habitats (sagebrush steppe, mixed grass prairie, greasewood and desert shrub), forest-dominated riparian habitats, and wetland habitats. Big game would continue to be adversely affected by wellfield development that causes direct loss of crucial winter range, other seasonally-used habitats, and decreased habitat function near roads and well pads due to human activity. Similarly, decreased habitat function is expected at greater sage-grouse leks by surface disturbance and potential human presence within 0.25 mile of leks during breeding and within 2 miles of nesting and brood-rearing habitats. Fragmentation and direct loss of native habitats by surface disturbance is expected to adversely affect migratory birds, particularly in habitats used by sagebrush-obligate species. Decreased raptor nesting habitat effectiveness is likely within 1 mile of New Fork River riparian zone. Decreased reproductive success in spring-spawning native salmonid species is possible from increased sedimentation in aquatic habitats and loss of forest-dominated riparian and shrub vegetation by each alternative.

### **MITIGATION MEASURES**

Mitigation measures could be applied during all phases of the project to minimize potential impacts to all resources. The Gold Book - *Surface Operating Standards and Guidelines for Oil and Gas Gold Book* promotes the use of Best Management Practices and Standards to reduce impacts and would apply to all alternatives. Under the No Action Alternative, mitigation measures would include the appropriate sections from Appendix A in the PAPA ROD (BLM, 2000b). Under the Proposed Action, Operators have proposed additional mitigation to further reduce impacts (Appendix C). BLM has developed Performance Based Objectives that would apply to Alternative C (Appendix E).